MEMO

To: Valerie Knepper, MTC

C: Case Study Cities

Date: April 18, 2007

From: Terri O'Connor/Bill Hurrell

Subject: Parking Profile and Policy Recommendations –Union City

Introduction

This memorandum presents the tailored parking demand model results and associated recommendations for the Metropolitan Transportation Commission's (MTC) *Reforming Parking Policies to Support Smart Growth Study* for the City of Union City. This memorandum includes a parking profile of the study areas based on parking demand, tailored parking rates developed by the parking demand model as well as an overview of final policy recommendations.

Methodology

To estimate the parking demand generation of future developments in Union City, WSA developed a parking model that combines pipeline land use predictions with calibrated demand rates for each use type. Pipeline project information provided by the City of Union City yielded the set of land use types to be examined within the model. Next, peak parking generation rates derived from a variety of sources, including the Institute of Transportation Engineers (ITE) publication *Parking Generation*, the Urban Land Institute (ULI) publication *Shared Parking*, and previous Wilbur Smith Associates parking studies were assigned to each land use. These peak rates represent each use's theoretical demand at its heaviest use time and in the event that every patron drives alone.

These peak rates were subsequently reduced by a series of 'mode split factors' to account for trips made by residents and visitors who walk, bike or use public transit to reach their destination. These factors were derived by comparing Union City's transit accessibility, land use mix, and demographics to other Bay Area case studies, as well as by analyzing recent census data for the area.

Additional rate reduction factors were included for each land use based on time-of-day demand shifts (the model calibrates for the weekday midday demand peak) and captive market trips. Captive market trips are those for which the proximity of uses facilitates walking between activities rather than using a vehicle, thereby reducing the demand for parking. In mixed-use areas near the BART station, the compatibility of office, retail, and restaurant uses results in a further reduction of the peak rate. To prevent double

counting of parking demand between uses amenable to captive trips, this concept was incorporated into a 'shared parking' factor, further reducing the peak rate. WSA evaluated two scenarios for Union City, one with shared parking reduction factors and one without. The scenario with shared parking assumed that within the 1.5 space per unit rate, the first space was dedicated and the second 0.5 space was available to share. In the model the shared parking reduction is reflected in other uses: retail, restaurant, and community space. The non-sharing scenario assumes the same base rates with no reductions for internal trip capture.

While the parking demand factors were initially based on standard industry sources, the close examination of observed on-site parking conditions by WSA resulted in closely calibrated parking rates unique to Union City. The total number of observed cars parked in adjacent gated communities prior to morning rush hour as well as the fill time for the BART station and surrounding roadways at morning rush hour is a proxy for the total demand for the study area land uses at peak time.

Parking Profile

A parking profile was developed for the Union City Station District based on the current parking demand, expected economic growth, future pipeline projects and parking rates estimated by the parking demand model.

Parking Rates

The existing utilization analysis coupled with current land use data provided the basis for developing parking generation rates. These were used to identify shared parking opportunities and complimenting land uses.

Peak Parking Factor

The Union City Station District currently exhibits high demand for parking beginning at morning rush hour through the end of the afternoon commute. However, as the area develops more intensely into a dense mixed use district around the BART station, it is expected that a mid-day peak will develop due to office uses, as demonstrated in similar cities and case study areas. As such, WSA developed parking rates based on the mid-day mid-week peak for similar areas. Several land use categories typically exhibit peaks at different time periods of the day and week. This indicates that there is significant potential for shared parking between adjacent land uses with opposing peak demands. Of the pipeline land uses described in the CSMU district, community space exhibits a peak significantly different from other uses. Other typical off peak uses are residential, theater and churches.

Shared Parking Factors and Internal Trip Capture

The mixed use nature of the districts also provides ample opportunity for internal trip capture (i.e. park once and walk to several destinations). This is highly likely to occur at the peak demand period of lunch time during the work week when local employees already parked walk to lunch and shopping destinations. Internal trip capture or trip chaining is also common in the evening as employees run errands on their way home from work and on weekends as visitors combine shopping and restaurant trips. The primary use for the work week was considered to be office related. As such, higher shared parking reduction factors were assigned to secondary uses such as retail and restaurant. Additional shared parking

factors were assigned to uses such as community spaces, as the peak use is typically focused to a particular time of the week thus providing a strong opportunity for shared parking at all other times.

Alternative Parking Rates

Parking rates in Table 1A and 1B indicate the demand based rates at the mid-day mid-week peak as well as the individual peak rates for each land use category at its heaviest use time. Both tables include mode split reduction factors and Table 1A includes shared parking factor inherent in internal trip capture for the districts. Table 1B shows parking rates without internal shared parking reduction factors.

The land uses that typically have mid-day midweek peak parking demand have adjusted rates based on the model. The rates the City of Union City adopts for major land uses based upon demand in the CSMU district should range between the demand rates based upon peak demand for the district and the individual peak rates for each land use category. All rates exhibit a marked reduction from the current parking code as indicated in the table. For current uses that have distinct peaks and have demonstrated difficulty sharing parking the higher value in the range should be considered. The range of rates should be provided in the parking code, but the final approval of the rate should be at the discretion of the planning department.

Table 1A Demand Based and Peak Based Parking Rates (parking/unit) with Shared Parking

			Reduction Factors						Midday Peak Adjusted			Land Use Peak Adjusted			
Land Use	Unit	Base Rate	Peak	Walk	Bike	Transit	AutoOwn	SharedPrk	ST	LT	Total	ST	LT	Total	Parking Code
Residential (Multifamily)	DU	1.5	1	0	0	0	0	0	0.15	1.35	1.50	0.15	1.35	1.50	1.5-2
Office/R&D	kSF	4	0.8	0.02	0.01	0.07	0	0	0.86	2.02	2.88	1.08	2.52	3.60	3.3
Retail	kSF	6	0.9	0.02	0.01	0.07	0	0.15	3.65	0.41	4.05	4.05	0.45	4.50	10
Community Space	kSF	10	0.1	0.02	0.01	0.07	0	0.25	0.59	0.07	0.65	5.85	0.65	6.50	10
BART Commuters		1	1	0	0	0	0	0	0.00	1.00	1.00	0.00	1.00	1.00	---
Bank	kSF	4.2	0.9	0.02	0.01	0.07	0	0.1	2.72	0.30	3.02	3.02	0.34	3.36	5
Fast Food	kSF	15	0.9	0.02	0.01	0.07	0	0.1725	8.84	0.98	9.82	9.82	1.09	10.91	10

Table 1B Demand Based and Peak Based Parking Rates (parking/unit) with no Shared Parking

			Reduction Factors						Midday Peak Adjusted			Land Use Peak Adjusted			
Land Use	Unit	Base Rate	Peak	Walk	Bike	Transit	AutoOwn	SharedPrk	ST	LT	Total	ST	LT	Total	Parking Code
Residential (Multifamily)	DU	1.5	1	0	0	0	0	0	0.15	1.35	1.50	0.15	1.35	1.50	1.5-2
Office/R&D	kSF	4	0.8	0.02	0.01	0.07	0	0	0.86	2.02	2.88	1.08	2.52	3.60	3.3
Retail	kSF	6	0.9	0.02	0.01	0.07	0	0	4.37	0.49	4.86	4.86	0.54	5.40	10
Community Space	kSF	10	0.1	0.02	0.01	0.07	0	0	0.81	0.09	0.90	8.10	0.90	9.00	10
BART Commuters		1	1	0	0	0	0	0	0.00	1.00	1.00	0.00	1.00	1.00	---
Bank	kSF	4.2	0.9	0.02	0.01	0.07	0	0	3.06	0.34	3.40	3.40	0.38	3.78	5
Fast Food	kSF	15	0.9	0.02	0.01	0.07	0	0	10.94	1.22	12.15	12.15	1.35	13.50	10

Sources: Wilbur Smith Associates, April 2007. Union City Municipal Code (18.28)

Parking Demand

Impact of BART Station

The Union City Bart Station currently has space for approximately 1,200 vehicles which fills to capacity at 7:35 AM. WSA observed that parking on nearby streets (Decoto Rd., Alvarado Niles Rd. and Union Square) filled with vehicles by 7:40 AM. As such, it was determined that the BART station was acting as a parking demand generator and further study was conducted to estimate its parking generation rate. WSA estimated approximately 200 spaces were used for overflow parking to estimate a total supply of 1,400 spaces.

Next, using 2005 BART station boarding and alighting data, Union City data was isolated for 12 hours, to determine the station entrances until 4:00 PM. This is the time we assumed patrons would start flowing back from work and parking demand would begin to ebb. WSA used Union City Transit Survey data to estimate mode split for BART patron station access. Next the station's average daily boardings for 2006 was used to estimate growth rate of parking spillover demand. The overflow demand is indicated in Table 2.

Table 2. BART Station Overflow Parking Demand

Mode split	2005 Riders	2006 Riders estimate	% increase
SOV	1771	1854	
Get a Ride	497	520	
Transit	404	423	
Other	435	455	
TOTAL	3725	3898	4.6%
Station Supply	1199		
Overflow Supply	200		
Overflow Demand	372	455	22.1%

Sources: BART 2006, Union City Transit, SRTP 2007. Wilbur Smith Associates, April 2007.

Impact of Future Developments

There are several developments in the pipeline in and around the Union City Intermodal Station District area that will have an impact on the areas parking demand. These include:

- Avalon Bay at Union Station (2007)
  - 73 du/acre
  - 438 units 1, 2 & 3 BR
- PSSC Site East: KB Homes (2007)
  - 216 Town homes
- PSSC Site West and PG&E Site: Barry Swenson Builders (2008-2013)
  - 1,154 housing units,
  - 61,500 retail ready space fronting on 11th Street,

  - 12,500 sq. ft of commercial space.
- Union City Intermodal Station (2007-2010)

Table 3 summarizes the existing and projected parking demand for the Intermodal station area projects using the rates developed by the parking model.

Table 3. Existing and Projected Parking Demand

	Existing Demand			Future Demand - SHARED			Future Demand - UNSHARED		
Land Use	Total	ST	LT	Total	ST	LT	Total	ST	LT
Residential (Multifamily)	1291.5	129.2	1162.4	5578.5	557.9	5020.7	5579	558	5021
Bank	7.9	7.1	0.8	7.9	7.1	0.8	9	8	1
BART Commuters	455.0	0.0	455.0	455.0	0.0	455.0	455	0	455
Fast Food	65.8	59.2	6.6	65.8	59.2	6.6	81	73	8
Office/R&D	193.6	58.1	135.5	3877.1	1163.1	2714.0	3877	1163	2714
Retail	1194.0	1074.6	119.4	1659.6	1493.6	166.0	1991	1792	199
Community Space	---	---	---	23.4	21.1	2.3	32	29	3
TOTAL	3,208			11,667			12,025		

Source: Wilbur Smith Associates, April 2007.

Using conservative shared parking reduction factors, the parking demand is reduced by 358 spaces for the station area. If Union City were to adopt both lower minimum parking requirements and even higher shared parking requirements, developers should be able to reduce required parking significantly.

Pricing

The parking model pricing module indicates that parking demand can be reduced by 20% or more if introduced during pipeline development as shown in Figure 1. If used as part of a complete parking management program, pricing could help control the timing of the eventual/potential need for building a parking structure.

WSA assumed the introduction of pricing prior to development of the Intermodal Station area and a price increase during development. The price initiation reduced the existing demand by 19 percent. A pricing increase during development reduced anticipated demand from 11,667 to 8,957 spaces. The assumptions for the pricing module are summarized in the Table 4.

Figure 1. Pricing Effect on Parking Demand

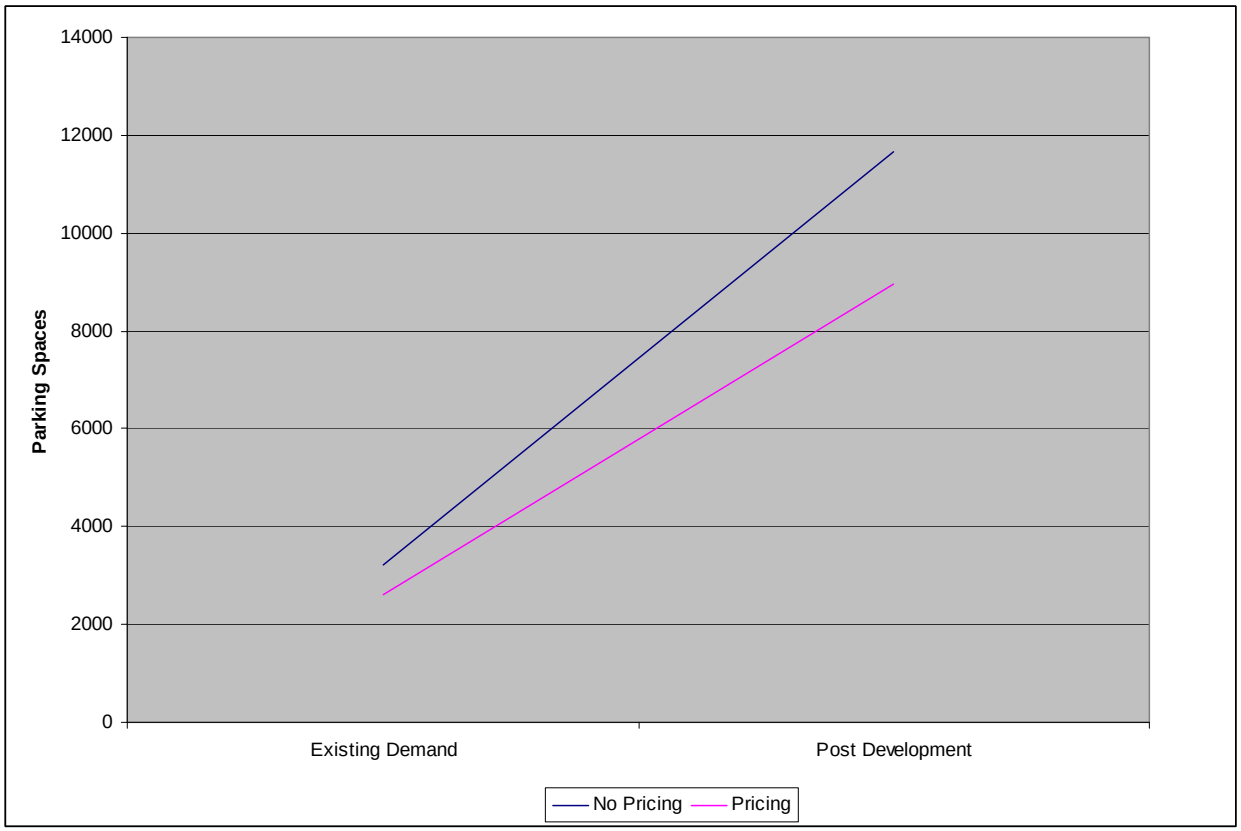

Table 4: Price Module Assumptions			
		Short Term Parkers	Long Term Parkers
Phase I	Inconvenience	7%	1%
	Elasticity (low/med/high)	30% high	0.05% high
	% Increase	100%	100%
Phase II	Inconvenience	7%	1%
	Elasticity (low/med/high)	15% medium	15% medium
	% Increase	150%	150%

Source: Wilbur Smith Associates, April 2007.

It is assumed the inconvenience of paying for parking weighs the greatest on short-term parkers and will immediately discourage a small percent due to lack of proper currency or need to stay longer than maximum time limits. Initially elasticity will be expected to be higher in an area with no pricing experience and demand reduction will be observed almost immediately. Overall long term parkers will be the most sensitive to pricing in the on-street spaces but in prior to development, there will be fewer options for alternative access so the demand will be less elastic, and as the mixed use development increases with the density around the station elasticity should increase.

Policy Recommendations

The City of Union City has established several smart growth enabling policies and programs in their Specific Plan; as a result, there are several smart growth strategies where the City has already laid important groundwork. There are, however, several more implementable strategies available to the City to help reach its goals. Innovative smart growth programs and policies that have been executed in communities throughout the Bay Area and North America should be considered.

Parking Pricing

Union City should phase in parking pricing both on and off-street. Figure 1 indicates that a two-tiered pricing program will help control parking demand and delay the need for additional parking supply. Once on-street pricing is introduced, it is important that a price differential is maintained such that off-street parking is cheaper and/or free. Pricing differentials will increase on-street short term parking supply by shifting long term users to off-street facilities. When parking spaces are priced correctly, price-sensitive long term users gravitate to lower priced off-street facilities, freeing up the smaller, more valuable supply of on-street spaces for users that are willing to pay a higher price for an available space, typically for a shorter duration.

Several rationales support pricing:

- BART is likely to begin pricing its primary parking lot as early as 2008. Spillover BART parking, already a documented phenomenon on streets near BART, will only increase without some form of street controls. Pricing on street will control spillover, generate revenues to support enforcement and be easier to enforce than timed parking requiring tire chalking and more frequent patrols than meter enforcement. Also, new pay display meters allow pricing to be varied by the most prime parking locations, parking duration or time of day, thereby moderating demand when and where it is most desirable to do so.
- The City agreement with BART indicates the City will make a good faith effort to price its replacement parking, providing a logical opportunity to begin off-street parking pricing.
- With the scale and density of development near BART now planned, pricing on and off street is suitable and efficient for allocating surface and structure parking and encouraging use of current and planned transit service.
- Parking pricing is important to support other TOD parking strategies, including best use of shared parking, reduced requirements, unbundling and transit support. Such actions are appropriate around the BART station where, as the census data referenced earlier shows, car ownership is lower than average, consistent with regional findings of MTC. The MTC 2000 BATS data indicates a high rate of transit, walking and bike trips[1], coupled with lower average auto ownership, vehicle trips and VMT for residents living within a half-mile of a transit station or ferry terminal.[2]

[1] "When broken down by mode, per capita transit trip rates for ½-mile residents are between two and a half and eleven times higher than other residents. Bicycle trip rates for ½-mile residents are almost twice the regional average and are between two and five times higher than residents living more than 1 mile from a rail or ferry stop. The same trend holds for walk trip rates." *Characteristics of Rail and Ferry Station Area Residents in the San Francisco Bay Area: Evidence from the 2000 Bay Area Travel Survey Characteristics of Rail and Ferry Station Area Residents in the San Francisco Bay Area: Evidence from the 2000 Bay Area Travel Survey.* Volume I. MTC Sept 2006. pp 42.

[2] "Households within ½-mile of a station produce between 47% and 60% fewer vehicle miles than their suburban and rural counterparts, which means that emissions per capita is much lower for the ½-mile group." MTC Sept, 2006. pp43.

In-lieu fees

Union City should develop a structure for assessing in-lieu parking fees for development in the Station District through application of the zoning code (CSMU District). As the stakeholder interviews suggest, developers will be attracted to paying such fees only where parking requirements are not perceived as too tight. For residential development, requirements much below 1.5 spaces per unit probably will not generate interest in fee payment. More importantly, fees are more likely to be paid for office rather than residential uses.

As for appropriate fee levels and expected revenues, there is considerable variation in fee levels across jurisdictions, ranging roughly from $10,000 to $30,000 per space for office developments.[3] Given recent increases in construction costs due in part to gas price hikes, it is advisable to consider fees in higher rather than lower ranges.

Where developers opt for fee payment, revenues can be considerable. Coconut Grove, FL adopted an in-lieu program in 1993 with fees of $10,000 per stall, or payments of $50/month/stall. Developers have opted out of 938 spaces, generating approximately $3 million in revenues. Funds support a 416-space garage with ground floor retail, landscaping, and traffic control devices. Union City also should consider utilizing such fees to support auto alternatives. Revenues could support transit, e.g. via discounted or free transit passes for residents or employees (e.g. Boulder, CO free pass program supported by parking revenues).

Unbundling Parking

A policy for unbundling parking from residential developments should be broached with developers for new projects within walking distance of transit. In particular, developer interviews suggest interest in the concept as a means for providing a parking option to tenants who want it, though balanced against possible management complexities. The most feasible facilities for unbundling are those parking facilities planned with parking managers who then can monitor its implementation and attend to possible management issues. As well, possible adverse consequences of unbundling on street (see stakeholder section about possible spillover concerns) can be addressed with parking pricing (see above) and revenues supporting city enforcers.

An example of unbundling is illustrative of its potential to reduce parking supply without significant management issues.[4] Residents in 300 apartment units at Market Common have no assigned parking – spaces are "unbundled" from rent. Residents pay $25 per month for one space and $75 to $100 for a second. Apartment residents do not buy assigned stalls. They obtain a "hunting license" (a swipe card good at garage gate) to roam and find parking in a structure shared with retail and restaurant patrons who pay hourly rates in the same structure. Retail patrons and tenants share about 1100 spaces in a parking structure, though there also is a small amount of on street parking for shoppers (36 spaces are referenced in one web page summary of the project).

[3] For example: Palo Alto, $18,000 per space; Walnut Creek, $16K; Mountain View, $13K; Carmel, $27K; Beverly Hills, $20K.See "Union City Developer Interview Guide," Tom Higgins, K.T. Analytics, Inc., August 8, 2006.

[4] "Unbundling At Market Commons," memo to Joan Malloy, Tom Higgins, K.T. Analytics, Inc., 10/11/06.

How do residents and shoppers share the same structure? Residents pay building management (not the parking operator) for swipe cards used at structure gates. Shoppers buy short term permits to access the garage ($1-4/hr depending on length of stay, with merchant validation allowed). Because retail is at ground floor and resident units at upper floors (10 story building), residents have "learned" to go to upper floors where parking generally is available. Residents do not seem concerned with having the structure open to non-residents, perhaps because elevators in the parking structure leading to residential areas are opened only by tenant pass key.

What about tenant permits falling into the hands of shoppers by accident, theft or black market? Parking management reviews use of resident parking cards for excessive use and blocks use of any lost cards. So far (development opened in November, 2001), there seems to be no detected problems.

According to a study by the Victoria Transport Policy Institute[5], parking surveys indicate up to 20% of available parking remains unused at peak time after the project was completed and fully occupied, suggesting good but not excessive utilization. Interviews with the property managers late in 2006 indicate there was still no crowding or complaints related to the parking policy.[6]

Given recent proposals for large scale, dense residential and mixed use proposals recently made for Union City, unbundling and shared use parking along the lines of the Market Common example are a reasonable combination for Union City to consider.

Shared Parking

Union City's shared parking agreement with BART provides an opportunity to develop a shared parking facility between BART users and patrons of newly developing fine arts center, community center, retail, residential and office complexes in the Intermodal Station Area. The parking model assumed a level of shared parking between land uses in the Intermodal Station Area with different peak demands (see Table 1) such as office and housing versus restaurant, retail, entertainment, as well as uses that can have internal trip capture such as office, retail and restaurant. In addition to reducing minimums for the station area as recommended by the model rates, the city could restructure its shared parking policy by making it a requirement rather than an option in a CSMU station overlay district. Parking structures should be examined in the context of each development's parking demand based on the parking demand characteristics of the station area. The parking model may be updated and analyzed with parcel level data to help fine tune this analysis.

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[5] Victoria Transport Policy Institute, *Parking Management Strategies, Evaluation and Planning*, 2006.

[6] Analysis indicates residential parking demand at the complex may be below one space per unit. Specifically, Arlington County under its shared use provisions allowed Market Common to build only 1100 spaces whereas normal code provisions would have required 1500 spaces. The McCaffery Interests representative indicated the 300 residential units share the 1100 parking space with 240,000 square feet of retail. Retail parking demand varies depending on exact but unknown mix at Market Common (McCaffery web page describes mostly chain stores such as Barnes & Noble without mention of significant dining or entertainment). Assuming Market Common generates demand for its size category as a shopping complex without significant dining and entertainment as per an average of 169 shopping centers analyzed by Urban Land Institute (See Shared Parking, ULI, 2nd Edition, Table 4-1), then shopper parking demand might be 4 spaces per 1000 square feet. If so, that is a peak demand of 960 spaces (4X240), say 900 off-street allowing for ample street use, leaving only 200 space demand for 300 tenant units, below a 1:1 ratio.

Transportation Demand Management (TDM)

Since a large portion of downtown Union City's future development will be housing and office space, it is essential to provide these residents and employees with strong incentives to use alternative transportation to and from work. TDM is an essential element to reducing parking demand. Developers can be required to participate in a transportation demand management program and provide incentives for current employers and residents to participate. A TDM program (required policy in General Plan TR-A.2.9), can include programs and policies to reduce single occupancy vehicle mode share, such as:

- Providing free or discounted transit passes for new residents and employees
- Parking cash out for employers that provide free parking
- Subsidizing carpool programs and providing reserved carpool spaces
- Requiring secure bicycle parking for every new development
- Employer provided amenities (e.g. showers, valet service)
- Guaranteed ride home programs and late night escorts to transit stops
- Bicycle rentals and/or purchase assistance
- Information and Education Programs:
    - Benefits of using transit or alternative modes;
    - "How to" information for making trips by bicycle, walking and transit
- Community or city sponsored bicycle or pedestrian activities such as:
    - Bike/Walk to Work Day
    - Bike Ride with City Council/Mayor
    - Walk to School Day

Bicycle and Pedestrian Facilities and Amenities

Union City's Intermodal station district will be a dense mixed use development of housing, offices, retail and community facilities where many visitors and residents will be likely either to park once and walk to several destinations or arrive by transit and walk or bike to the area destinations. As such, the City should explore policies and programs to enhance pedestrian and bike connectivity throughout the district to encourage the use of alternative modes of transportation. Enhancements include but are not limited to:

- Bicycle and pedestrian circulation within the new development including good connections to the Intermodal Station
- Connection from the Station District to the regional bicycle and pedestrian network
- Wayfinding program made up of clear, easy to read, consistent signage including the locations of landmarks and key destinations
- Secure bicycle parking at the Intermodal Station and within the development for visitors, residents and employees
- Pedestrian and bicycle amenities such as pedestrian level street lighting and signage, wider sidewalks, street trees for shade, seating areas, showers and locker facilities, and enhanced crosswalks